

What Is Claimed Is:

1. A data prefetching method in a computer system including a first computer which a database management system operates, a storage device which is connected to the first computer, stores data of a database which the database management system manages and has a cache memory, and a second computer which is connected to the first computer and uses the data of the database, comprising the steps of:

sampling a processing content which satisfies given conditions from a content of processing which is executed by the database management system;

determining a data prefetching method based on the sampled content;

instructing prefetching of data based on the data fetching method to the storage device when the content of the processing is executed; and

instructing completion of the data fetching to the storage device when the execution of the content of the processing is completed.

2. The data fetching method according to claim 1, wherein the given conditions imply conditions that portions which are repeatedly executed are included in the content of the processing.

3. The data fetching method according to claim 2, wherein the step for instructing the data prefetching includes a step for instructing a storage capacity which is ensured by the cache memory that the storage memory has.

4. The data fetching method according to claim 3, wherein the data fetching method further includes steps of:

instructing the data prefetching based on the data prefetching method also to the database management system when the data prefetching based on the data prefetching method is instructed to the storage device; and

instructing the completion of the data fetching to the database management system when the completion of the data prefetching is instructed to the storage device; and

wherein the step for instructing the data prefetching includes a step for instructing the storage capacity to be ensured by the cache memory which the database management system has.

5. The data fetching method according to claim 3, wherein

in the step for determining the data prefetching method, information on a constitution of the database and information on mapping of a memory area in the computer system are used.

6. The data fetching method according to claim 4, wherein in the step for determining the data prefetching method, the data prefetching method is determined using information on the number of repetition of the processing.

7. The data fetching method according to claim 1, wherein the first computer and the second computer are constituted of the same computer.

8. The data fetching method according to claim 1, wherein the step for sampling the content of the processing is executed when the processing is executed using the database management system.

9. The data fetching method according to claim 8, wherein the step for sampling the content of the processing, the step for determining the prefetching method, the step for instructing the data prefetching and the step for instructing the completion of the data prefetching are executed by the first computer.

10. The data fetching method according to claim 8, wherein the step for sampling the content of the processing, the step for determining the prefetching method, the step for instructing the data prefetching and the step for instructing the completion of the data prefetching are executed by the second computer.

11. The data fetching method according to claim 8, wherein the step for sampling the content of the processing, the step for determining the prefetching method, the step for instructing the data prefetching and the step for instructing the completion of the data prefetching are executed by the storage device.

12. The data fetching method according to claim 1, wherein the step for sampling the content of the processing is executed by the second computer, and the step for determining the prefetching method, the step for instructing the data prefetching and the step for instructing the completion of the data prefetching are executed by the first computer.

13. A data prefetching program which is executed by a computer system including a computer which operates a database management system and a storage device which stores data of a database which the database management system manages and has a cache, the data prefetching program comprising:

acquiring information on a content of processing which is executed by the database management system;

acquiring information on mapping of data respectively from the database management system, the computer and the storage device;

acquiring information indicative of starting of processing;

determining a data prefetching method using the acquired information;

giving the data prefetching method to the storage device;

acquiring information indicative of completion of processing; and

instructing releasing of the data prefetching method to the storage device.

14. The storage medium storing the data prefetching program according to claim 13.

15. A program for managing prefetching of data of as a cache which is executed in a computer system including a storage device which has a plurality of logical disk devices which stores data and a cache which stores a copy of the data stored in the logical disk devices and a database management system DBMS which executes management of reading and writing of the data from the storage device, the program comprising:

an information acquisition module for acquiring information on a prefetching job including information on a program of an object which issues a prefetching instruction and information on a DBMS constitution from the DBMS,

an SQL analysis module for grasping a repetition group based on information on SQL statements (statements described in a structural inquiry language in the same form) which a job program designated by the acquired prefetching job information issues and, at the same time, for setting a structure of access data and an access method based on an execution plan of the SQL statements acquired from the DBMS;

a prefetching method determination module for determining a cache amount of the DBMS and a cache prefetching method based on information analyzed by the SQL analysis module and information on an input data amount and a cache amount as repetition information acquired from a job management program; and

a module for instructing prefetching which issues the

prefetching method determined by the prefetching method determination module to the storage device which constitutes an access destination.

16. A management method which is executed in a computer system including a storage device which has a plurality of logical disk devices which store data and a cache which stores a copy of the data stored in the logical disk devices and a database management system DBMS which executes management of reading and writing of the data from the storage device, the management method comprising:

a step for acquiring information on a prefetching job including information on a program of an object which issues a prefetching instruction and information on a DBMS constitution from the DBMS,

a step for an SQL analysis for grasping a repetition group based on information on SQL statements which a job program designated by the acquired prefetching job information issues and, at the same time, for setting a structure of access data and an access method based on an execution plan of the SQL statements acquired from the DBMS;

a prefetching method determination step for determining a cache prefetching method based on information analyzed by the SQL analysis and information on an input data amount as repetition information acquired from a job management program; and

a step for instructing prefetching which issues the prefetching method determined by the prefetching method determination module to the storage device which constitutes an access destination.

17. The management method according to claim 16, wherein the prefetching method determination step sets a storage capacity to be ensured in the cache.

18. The management method according to claim 17, wherein information which is determined by the prefetching method determination step and is transmitted to the prefetching instruction step adopts a data structure which includes information on a name to the data structure, a cache prefetching method including sequential reading or instantaneous reading, IDs of logical disk devices and a cache amount.

19. The management method according to claim 16, wherein information for instructing prefetching which is transmitted to

the storage device adopts a data structure which includes identifiers of logic structures indicating data areas of the storage device, the determined cache prefetching method, the cache amount and information indicative of an order of access.

20. The management method according to claim 16, wherein the management method further includes a step which instructs the DBMS and the storage device to release a setting of the cache which is already set in the DBMS and the storage device upon reception of completion of execution of the job program.